Before the
Federal Communications Commission
Washington, D.C.

In the Matter of	)	ET Docket No. 03-104
Inquiry Regarding Carrier Current Systems	)	
Including Broadband over Power Line Systems	)	

Reply Comments of Thomas P. O'Brien, P.E.

Introduction:

Thomas P. O'Brien, P.E., submits these comments on the Commission's Notice of Inquiry ("NOI") in ET Docket No. 03-104.

The NOI is a request for technical information to assure that Broadband over Power Line ("BPL"), if deployed, will harmonize with existing services. The Commission has recognized that the current Part 15 regulations may not be sufficient to permit the implementation of broadband technologies over power lines without disruption to existing licensed and non-licensed services. The Commission seeks recommendations for changes to Part 15 to promote and encourage BPL technology.

Comments:

1. The Information Technology Industry Council, in its comments, recommends that BPL systems be classified as Information Technology Equipment ("ITE") for purposes of establishing Part 15 emissions limits. This would place the BPL systems in a class of devices and systems whose emissions can be conveniently regulated.
2. Numerous Amateur Radio commenters express concern that Access BPL will "wipe out" communications in HF frequencies (3-30 MHz). The commission must consider that the HF bands remain the ONLY means of long-range, unassisted communications available. The laws of Physics are unlikely to soon change that fact. Furthermore, as I have mentioned in my own comments to this NOI, we are presently in the low point of a Solar Minimum. Any measurements of noise due to BPL will need to take into account that fact, and the fact that HF propagation changes dramatically in the 11-year Sunspot Cycle. When we return to a Solar Maximum, in five years or so, we can expect any Access BPL signals to be efficiently propagated worldwide. This would seem to be inconsistent with the kinds of "good neighbor" obligations the US has as a member of the International Telecommunications Union (ITU).
3. Comments from the North American Shortwave Association (NASWA) include a statement about using "notching" techniques to eliminate interference to a few licensed services. NASWA's comment, "It is dangerous to carve out holes in the allowable radiated spectrum from Access BPL devices because that will forever

constrain the flexibility the ITU and the FCC have in adjusting the HF broadcast bands to accommodate changing needs." NASWA goes on to emphasize the high cost of change after wide deployment of Access BPL. This is particularly apt in the light of the experience of a HomePlug Alliance member, who deployed thousands of HomePlug-compliant devices, only to find that they interfered with licensed services. The result was a very expensive recall-and-replace action.

4. The comments of Satius, Inc., are dated July 14, 2003, and should be dismissed as not timely filed. In any case, those comments are filled with unfounded and inaccurate statements, such as "twisted pair wires, like telephone wires, have in most cases larger emission and harmonics than power line wires." For the most part, the comments of Satius do not respond to the NOI, which asks for technical information. Instead, the comments expound on the claimed benefits of Satius' proprietary technology.
5. The United Power Line Council ("UPLC"), on its Web site, has "Suggestions for Comments on the Notice of Inquiry". The suggestions outlined are not responsive to the NOI, in that they do not suggest answering any of the NOI's technical questions, instead focusing on "facilities-based competition", "economic opportunities", "improved infrastructure security/public safety". UPLC also recommends that its members comment that "Part 15 emissions limits will continue to protect licensed services from interference and early BPL operations confirm that speculation about potential interference is unsubstantiated and unwarranted." This sort of argument may be good <u>politics</u>, but it is NOT good <u>engineering</u>. It should be obvious that it is incumbent on the developers of Access BPL (as part of their obligation under Part 15) to monitor their test sites for interference to licensed spectrum. A typical test activity is documented in IEEE Communications, May 2003, "Demonstration of the Technical Viability of PLC Systems on Medium- and Low-Voltage Lines in the United States", by George Jee, et al. The testing described is very thorough, but focuses on the performance of the Access PLC system as a network, and apparently ignores any consideration of radiated emissions.
6. Some of the Amateur Radio comments have suggested that some sort of positive identification signal be transmitted along with the conducted BPL signal. I concur with these suggestions, because an unidentified increase in the ambient noise level due to unintentional radiation from Access BPL will be extremely difficult to isolate and correct, without the ability to turn off the Access BPL signal. A CW ID, such as the ones required of two-way radio services, would be appropriate. Although CW ID is not typically required under Part 15, it should be required for Access BPL, due to its potential wide deployment.
7. In light of the recent Northeast Power Blackout, I suggest that it is not prudent for any power company to increase the electrical complexity of any of its systems by adding BPL, at least until the major redesign of its control and interconnect system has been completed. A utility whose rush to Access BPL caused a blackout would be unpopular indeed, in both consumer and financial circles.

Sincerely,

/s/

Thomas P. O'Brien, P.E.

4115 Highknoll Ln.
Seabrook, TX 77586-4226
19 August 2003